

REMARKS

Claims 1-39 have been canceled, and new claims 40-69 have been added. Accordingly, claims 40-69 are pending in this case. No new matter has been added. In the new set of claims, original claim 17 and original claim 1 have been combined and incorporated into new claim 40. Original claims 18 and 19 has been renumbered to claim 41 and 42. Original claim 32, which depended from original claim 31, has been rewritten in independent form as new claim 69, which incorporates all of the limitations of original claim 31. The remaining claims have been renumbered accordingly.

ELECTION/RESTRICTION

Applicant acknowledges that the Examiner has withdrawn claims 34-39 from consideration. Claims 34-39 have been cancelled without prejudice for further prosecution in a divisional application.

REJECTIONS UNDER 35 U.S.C. §112

Claims 1-30 have been rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Applicant traverses the rejection to the extent that it is maintained.

Claims 1-30 have been cancelled and new claims 40-71 have been added. In adding new claims, the Examiner's rejections were taken into consideration. Applicant respectfully asserts that new claims 40-72 are clear and definite. Withdrawal of the rejection is requested.

REJECTIONS UNDER 35 U.S.C. §103

Jett in view of Wada or Hartig

Claims 1-30 were rejected under 35 U.S.C. §103(a) as allegedly being obvious over Jett et al. (*Flow Cytometry and Sorting* (eds. Melamed et al.), New York: Wiley-Liss, pages 381-396 (1990)), in view of either Wada et al. (US 5,465,849) or Hartig et al. (*Electrophoresis*, 13:674-676 (1992)). Applicant respectfully traverses the rejection to the extent that it is maintained.

The Examiner stated that Jet et al. disclose apparatuses for flow cytometry and methods for detection, including the use of immunoassays; that Wada et al. disclose the

separation of particles in accordance with their magnetic susceptibility; and that it would have been obvious to use the magnetic separation apparatus of Wada et al. in the apparatus of Jett et al. Applicant respectfully asserts that the combination of the magnetic separation apparatus of Wada et al. in combination with the apparatus of Jett et al. does not lead to the presently claimed invention.

None of the references alone, or in combination, teach or suggest a second inlet means for entering a first guiding buffer as required by the new claims 40-68. One function of the first guiding buffer as indicated in the claims is to control the cross-section and the flow path of the fluid containing particles when flowing through the flow channel, so that one particle at a time passes a cross-section of the flow channel. Another function of the first guiding buffer is that the particles to be separated from the fluid containing particles are deflected by the field from the fluid containing particles and into the first guiding buffer, see e.g. p.6, line 38 to p.7, line 5 of the description. The latter function has also been explicitly stated in the new claims.

This arrangement facilitates very accurate adjustment of the flow path and cross-section of the fluid containing particles by adjusting the flow rate of the first guiding buffer and makes a micro flow system according to the claimed invention highly flexible with regard to the size of the particles in the particle-carrying fluid. Furthermore, the shear stress applied to the particles is substantially reduced by the presence of a guiding buffer between the particle containing fluid and the walls of the flow channel, and the concentration of deflected particles in the guiding buffer may be controlled by adjustment of the flow rate of the first guiding buffer. In particular, the latter advantage will become even more pronounced with the introduction of a second guiding buffer according to claim 41 since the particle containing fluid flow in that case may be controlled by the flow of two guiding buffers.

None of the references, alone or in combination, teach or suggest entering a guiding buffer along the flow of the fluid containing particles nor inlet means for entering a guiding buffer. Withdrawal of the rejection is respectfully requested.

Wilding

Claims 31 and 33 have been rejected under 35 U.S.C. §103(a) as being allegedly obvious over Wilding et al. (US 5,304, 487). Applicant respectfully traverses the rejection to the extent that it is maintained.

Claims 31 and 33 have been cancelled. Claim 32, which depended from claim 31, has been combined with claim 31 as new claim 69. Claim 69 includes all the limitations of claim 31. The Examiner indicated that claim 32 would be allowable if rewritten to overcome the rejections under 35 U.S.C. §112, second paragraph and to include all the limitations of the base claim and any intervening claims. Applicant asserts that claim 69 satisfies the requirements set forth by the Examiner. Withdrawal of the rejection is respectfully requested.

ALLOWABLE SUBJECT MATTER

The Examiner indicated that claim 32 would be allowable if rewritten to overcome the rejections under 35 U.S.C. §112, second paragraph and to include all the limitations of the base claim and any intervening claims. Applicant asserts that claim 69 satisfies the requirements set forth by the Examiner. Notice indicating that claim 69 is allowed is respectfully solicited.

Applicants have received the Examiner's statement of reasons for the indication of allowable subject matter. Applicants believe that there are additional reasons that the claims distinguish the prior art, other than the reasons stated by the Examiner.

Conclusion

Applicant asserts that the arguments contained herein satisfy the requirements of Title 35 U.S.C. Applicant respectfully requests the Examiner to withdraw the rejections and objections and pass the case to issue.

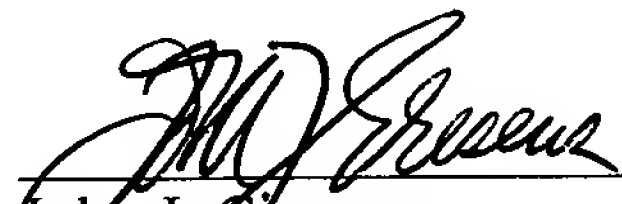


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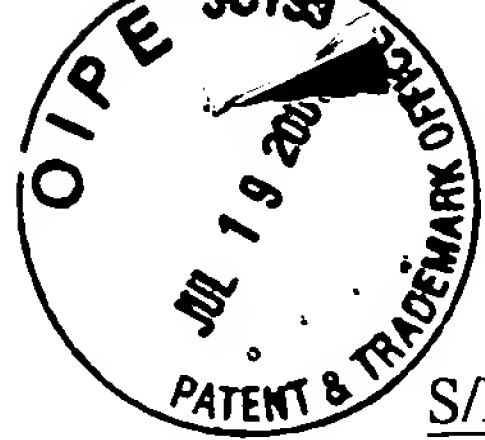
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Respectfully submitted,

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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| Applicant: | Gert BLANKENSTEIN | Examiner: | M. Pham |
| Serial No.: | 09/254310 | Group Art Unit: | 1641 |
| Filed: | 12/06/99 | Docket No.: | 5799.130USWO |
| Title: | A MICRO FLOW SYSTEM FOR PARTICLE SEPARATION AND ANALYSIS | | |

COPY OF CLAIMS SHOWING AMENDMENTS MADE

Claims 1-39 were canceled and new claims 40-69 were added.

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